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BIRD MORE ECONOMICAL OF ENERGY THAN BEST AEROPLANE.

Two Ounces of Fuel In The Shape of Body Fat Enables The Plover to Go 2,400 Miles At High Rate of Speed.

Washington, D. C., There is an aerial machine far more economical of energy than the best aeroplane invented, and that is the bird known as the golden plover. This bird, according to the United States Department of Agriculture's new bulletin (No.185) on "Bird Migration," can fly 2,400 miles without a stop, making the trip in not quite 48 hours, and using only two ounces of fuel in the shape of body fat. A thousand-pound aeroplane, if as economical of fuel, would consume in a 20-mile flight not the gallon of gasoline required by the best machines but only a single pint. The fact that the screw propeller of the aeroplane has no lost motion, while the to-and-fro motion of the bird's wings appears to be an uneconomical way of applying power makes the fact regarding fuel seem even more strange.

Even the little humming bird can do better than the aeroplane, for in its migration across the Gulf of Mexico it flies over 500 miles in a single night. Nearly all birds, in fact, show in their soaring and sailing that they are proficient in the use of several factors in the art of flying that have not yet been mastered either in principle or practice by the most skillful of modern aviators. A vulture or a crane, after a few preliminary wing beats, sets its wings and mounts in wide sweeping circles to a great height, overcoming gravity with no exertion apparent to human vision even when assisted by the most powerful telescopes.

The Carolina rail, or sora, has small, short wings apparently ill adapted to protracted flight, and ordinarily when forced to fly does so reluctantly and alights as soon as possible. It flies with such awkwardness and apparently becomes so quickly exhausted that at least one writer has been led to infer that most of its migration must be made on foot; the facts are, however, that the Carolina rail has one of the longest migration routes of the whole rail family and easily crosses the wide reaches of the Caribbean Sea.

The popular belief that birds under ordinary circumstances find ocean flight wearisome, and that after laboring with tired

wings across the seemingly endless waste they sink exhausted on reaching land, is disproven by facts, according to the new pamphlet. It seems rather that the powers of locomotion with which nature has endowed many birds are so wonderful that under normal conditions they can easily cross the Gulf of Mexico at its widest point and even pass without pause over the low swampy coastal plain to the higher territory beyond. So little averse are birds to an ocean flight that many fly from eastern Texas to the Gulf coast of southern Mexico though this 400 miles of water journey hardly shortens the distance of travel by an hour's flight. Thus birds avoid the hot, treeless plains and scant provender of southern Texas by a direct flight from the moist, insect-teeming forests of northern Texas to a similar country in southern Mexico.

WHERE DO BIRDS GO WHEN THEY MIGRATE?

Everybody knows that birds when they migrate in the fall generally "go South," but knowledge is seldom more specific. The Department's new bulletin brings out the fact that while some birds go to Florida or the West Indies or Mexico, others such as the bobolink and rice bird go as far South as Paraguay and the southern part of Brazil.

MYSTERIOUS DISAPPEARANCE OF CHIMNEY SWIFT.

Much has been learned about bird migration but much yet remains to be learned, and the following is one of the most curious and interesting of the unsolved problems. The chimney swift is one of the most abundant and best-known birds of eastern United States. With troops of fledglings catching their winged prey as they go and lodging by night in tall chimneys, the flocks drift slowly south joining with other bands, until on the northern coast of the Gulf of Mexico they become an innumerable host. Then they disappear. Did they drop into the water or hibernate in the mud, as was believed of old, their obliteration could not be more complete. In the last week in March a joyful twittering far overhead announces their return to the Gulf coast, but their hiding place during the intervening five months is still the swift's secret.